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FLUOR

Memorandum

To: S. J. Trent E6-35 Date: M4W41-SLF-07-217
April 16, 2007

From: S. L. Fitzgerald, Manager *SLF*
WSCF Analytical Chemistry

cc: w/Attachments
T. F. Dale S3-30 J. E. Trechter S3-30
H. K. Mezmarich S3-30 D. D. Wright S3-30
P. D. Mix S3-30 File/LB

Subject: FINAL RESULTS FOR UR-1 OPERABLE UNIT AUGER/SURFICIAL QC SAMPLES –
SAMPLE DELIVERY GROUP WSCF20070503 – SAF NUMBER F07-031

Reference: (1) Groundwater Protection Program-Letter of Instruction, FH-EIS-2003-MEM-001,
October 31, 2002

(2) HNF-SD-CD-QAPP-017, Rev. 8, Waste Sampling & Characterization Facility Quality
Assurance Plan

This letter contains the following attachments for sample delivery group WSCF20070503:

- Cover Sheet (Attachment 1)
- Narrative (Attachment 2)
- Analytical Results (Attachment 3)
- Sample Receipt Information (Attachment 4)

SLF/grf

Attachments 4

RECEIVED
JUL 30 2007
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M4W41-SLF-07-217

ATTACHMENT 1

COVER SHEET

Consisting of 2 pages
Including cover page

WSCF SAF NUMBER CROSS REFERENCE

Group#: WSCF20070503
Data Deliverable Date: 09-may-2007
Data Deliverable: Cover Sheet

SAF#	Sample ID	WSCF#	Matrix
F07-031	B1MW24	W07GR00562	WATER
	B1MW25	W07GR00563	WATER

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ATTACHMENT 2

NARRATIVE

Consisting of 3 pages
Including cover page

Sample Delivery Group	WSCF20070503
Sample Matrix	WATER
Sample Visual	N/A
SAF Number	F07-031
Data Deliverable	Summary Report

Introduction

Two (2) UR-1 Operable Unit Auger/Surficial QC samples were received at the WSCF Laboratory on March 26, 2007. The samples were analyzed for the analytes indicated on the attached copy of the chain of custody (COC) form in accordance with the *Groundwater Remediation Program (GRP) – Letter of Instruction*, referenced in the cover letter.

The narrative (Attachment 2) will address sample characteristics, analyses requested and general information in performance of the analytical methods. A Data Summary Report (Attachment 3) includes analytical results, a comment report detailing method abnormalities, tentatively identified peaks if applicable, method references, and Laboratory QC information. Copies of the chain of custody and sample receipt documentation are included as Attachment 4.

Analytical Methodology for Requested Analyses

Refer to *WSCF Method References Report*, page 10, for a complete listing of approved analytical methods.

Radiochemistry Comments

Rad Chem – There are no hold times associated with WSCF's radiochemical methods. A Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group. See pages 13 through 14 for QC details. Analytical Note:

- Strontium-89,90 – Duplicate QC was analyzed on sample# B1MW46(SDG# 20070484, SAF# F06-015).

All QC controls are within established laboratory limits.

This Summary Report is in compliance with the SOW, both technically and for completeness. Release of the data contained in this hard copy report has been authorized by the WSCF Laboratory Analytical Manager and Client Services, as verified by the following signature.



Pauline D. Mix
WSCF Client Services

Abbreviations

Hg – mercury
IC – ion chromatography
ICP – inductively coupled plasma
ICP/AES – ICP/atomic emission spectroscopy
ICP/MS – ICP/mass spectrometry
Total U – total uranium
AT/TB – total alpha/total beta
AEA – Alpha Energy Analysis
WTPH-G – Total Hydrocarbons-Gasoline

Am – americium
Cm – curium
Pu – plutonium
Np – neptunium
GEA – gamma energy analysis
H3 – Tritium
Sr – Strontium 89, 90
WTPH-D – Total Hydrocarbons-Diesel
TSS – Total Suspended Solids

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ATTACHMENT 3

ANALYTICAL RESULTS

Consisting of 8 pages
Including cover page

**WSCF
ANALYTICAL RESULTS REPORT**

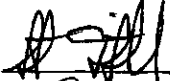
for

Groundwater Remediation Program

Richland, WA 99354

Attention: Steve Trent

Analytical:

 4/16/07

Client Services:

EDH; P.D.M. 4/15/2007

All results are reported on an "as received" basis unless otherwise noted in the comment section.

This information is intended for the use of the addressee only. If the reader of this report is not the intended recipient or is not authorized by the recipient to receive the report, you are hereby notified that any dissemination, distribution or copying of this report is strictly prohibited. If you have received this report in error, please notify WSCF Laboratory immediately by telephone at (509) 373-7020 or (509) 531-8004. Information designation of this report is the responsibility of the customer.

Contract#: FH-EIS-2003-MEM-001

Report#: WSCF20070503

Report Date: 13-apr-2007

Report WGPP/ver. 5.2

Groundwater Remediation Program

Page 1

W13q Worklist/Batch/QC Report for Group# WSCF20070503

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
31366	1	31743	35854	BLANK		Strontium 89/90
31366	2	31743	35854	LCS		Strontium 89/90
31366	3	31743	35854	DUP	W07GR00491	Strontium 89/90
31366	8	31743	35854	SAMPLE	W07GR00562	Strontium 89/90
31366	9	31743	35854	SURR	W07GR00562	Strontium 89/90
31366	10	31743	35854	SAMPLE	W07GR00563	Strontium 89/90
31366	11	31743	35854	SURR	W07GR00563	Strontium 89/90
31344	1	31721	35935	BLANK		Gamma Energy Analysis-grd H2O
31344	2	31721	35935	LCS		Gamma Energy Analysis-grd H2O
31344	3	31721	35935	DUP	W07GR00562	Gamma Energy Analysis-grd H2O
31344	4	31721	35935	SAMPLE	W07GR00562	Gamma Energy Analysis-grd H2O
31344	5	31721	35935	SAMPLE	W07GR00563	Gamma Energy Analysis-grd H2O

WSCF

METHOD REFERENCES REPORT

Department: Radiochemistry

The results provided in this report were generated using the following WSCF Laboratory procedures. For your convenience, this table provides a listing of the regulatory or industry methods that are referenced by each of these WSCF procedures. Please note that the most recent version of the regulatory or industry method is listed here even though the WSCF procedure may reference an older version of the method. Also, a reference to a regulatory or industry method here does not necessarily indicate a verbatim implementation of that method.

LA-508-415	LA-508-415: OPERATION OF THE PROTEAN 2-INCH ALPHA/BETA COUNTING SYSTEM FOR GROSS	
	HEIS ALPHA_GPC	GROSS ALPHA GPC
	HEIS BETA_GPC	GROSS BETA GPC
	HEIS SRTOT_SEP_PRECIP_GPC	Plutonium 89/90
LA-508-481	LA-508-481: GAMMA ENERGY ANALYSIS USING PROCOUNT SOFTWARE	
	HEIS GAMMA_GS	Gamma Emission Spectrometry

Note: A complete list of WSCF analytical procedures and referenced regulatory or industry methods is available online at <http://www2.ri.gov/phmc/as-dol>.

Report Date: 13-apr-2007
Report#: WSCF20070503
Report WGPPM/5.2

Page 1

WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F07-031
Sample # W07GR00562
Client ID: B1MW24

TRENT
WSCF

Matrix: WATER

Group #: WSCF20070503
Department: Radiochemistry
Sampled: 02/26/07
Received: 03/26/07

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Gamma Energy Analysis-grd H2O											
Cesium-137	10045-97-3	LA-508-481	U	-4.02	pCi/L	+ -5.07	pCi/L	1.00	7.2		04/10/07
Strontium 89/90											
Strontium-89/90	SR-RAD	LA-508-415	U	-1.40	pCi/L	+ -3.57	pCi/L	1.00	2.6		03/29/07
Sr-85 Tracer by Beta Counting	SR85	LA-508-415		89.8	Percent			1.00	0.0		03/29/07

MDL = Minimum Detection Limit

RQ = Result Qualifier

TP Err = Total Propagated Error

DF = Dilution Factor

* - Indicates results that have NOT been validated; + - Indicates more than six qualifier symbols

Report WGPP/ver. 5.2

Groundwater Remediation Program

WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F07-031
Sample # W07GR00563
Client ID: B1MW25

TRENT
WSCF

Matrix: WATER

Group #: WSCF20070503
Department: Radiochemistry
Sampled: 02/26/07
Received: 03/26/07

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Gamma Energy Analysis-grd H2O											
Cesium-137	10045-97-3	LA-508-481	U	-3.29	pCi/L	+ -5.82	pCi/L	1.00	9.4		04/04/07
Strontium 89/90											
Strontium-89/90	SR-RAD	LA-508-415	U	1.30	pCi/L	+ -3.32	pCi/L	1.00	2.8		03/29/07
Sr-85 Tracer by Beta Counting	SR85	LA-508-415		84.1	Percent			1.00	0.0		03/29/07

MDL=Minimum Detection Limit

RQ=Result Qualifier

TP Err=Total Propagated Error

DF=Dilution Factor

U - Analyzed for but not detected above limiting criteria(inorg)

* - Indicates results that have NOT been validated; + - Indicates more than six qualifier symbols

Report WGPP/ver. 5.2

Groundwater Remediation Program

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20070503

Matrix: WATER

Test: Gamma Energy Analysis-grd H2O

Sample Date: 02/26/07

Receive Date: 03/26/07

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W07GR00562											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Cesium-137	10045-97-3	U-0.779		RPD			n/a	20.000		04/10/07
BATCH QC											
BLANK	Cesium-137	10045-97-3	U-1.023	n/a	pCi/L	-10.000	1000.000				04/03/07
LCS	Cesium-137	10045-97-3	4192	117.095	% Recov	80.000	120.000				04/09/07

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20070503
Matrix: WATER
Test: Strontium 89/90

Sample Date: 03/22/07
Receive Date: 03/22/07

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W07GR00491 BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Sr-85 Tracer by Beta Counting	SR85	91.7	91.700	% Recov	30.000	105.000				03/29/07
DUP	Strontium-89/90	SR-RAD	U1.3E-01		RPD			n/a	20.000		03/29/07
Lab ID: W07GR00562 BATCH QC ASSOCIATED WITH SAMPLE											
SURR	Sr-85 Tracer by Beta Counting	SR85	89.8	89.800	% Recov	30.000	105.000				03/29/07
Lab ID: W07GR00563 BATCH QC ASSOCIATED WITH SAMPLE											
SURR	Sr-85 Tracer by Beta Counting	SR85	84.1	84.100	% Recov	30.000	105.000				03/29/07
BATCH QC											
BLANK	Sr-85 Tracer by Beta Counting	SR85	94.4	94.400	% Recov	30.000	105.000				03/29/07
BLANK	Strontium-89/90	10098-97-2	U8.4E-01	n/a	pCi/L	-10.000	100.000				03/29/07
LCS	Sr-85 Tracer by Beta Counting	SR85	99.3	99.300	% Recov	30.000	105.000				03/29/07
LCS	Strontium-89/90	10098-97-2	416.0	98.830	% Recov	80.000	120.000				03/29/07

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ATTACHMENT 4

SAMPLE RECEIPT INFORMATION

Consisting of 4 pages
Including cover page

Waste Sampling and Characterization Facility
P.O. BOX 1970 S3-30, Richland, WA 99352
PHONE: (509) 373-7004/FAX: (509) 373-7134

ACKNOWLEDGMENT OF SAMPLES RECEIVED

5/9/07
File KB

Groundwater Remediation Program

Richland, WA 99354
Attn: Steve Trent

Customer Code: GPP
PO#: 121640/ES10
Group#: 20070503
Project#: F07-031
Proj Mgr: Steve Trent A0-21
Phone: 373-5869

The following samples were received from you on 03/26/07. They have been scheduled for the tests listed beside each sample. If this information is incorrect, please contact your service representative. Thank you for using Waste Sampling and Characterization Facility.

Sample#	Sample Id	Tests Scheduled	Matrix	Sample Date
W07GR00562	B1MW24	TRENT @GEA-GPP @SR89_90	Water	02/26/07
W07GR00563	B1MW25	TRENT @GEA-GPP @SR89_90	Water	02/26/07

Test Acronym Description

Test Acronym	Description
@GEA-GPP	Gamma Energy Analysis-grd H2O
@SR89_90	Strontium 89/90

COLLECTOR <i>Lanman Wise</i>		COMPANY CONTACT TRENT, SJ		TELEPHONE NO. 373-5869		PROJECT COORDINATOR TRENT, SJ		PRICE CODE 7N		DATA TURNAROUND 45 Days / 45 Days	
SAMPLING LOCATION I-EB-1 <i>C5614</i>		PROJECT DESIGNATION UR-1 Operable Unit Auger and Surficial Sampling - QC Sampling				SAF NO. F07-031		AIR QUALITY <input type="checkbox"/>			
ICE CHEST NO.		FIELD LOGBOOK NO.		COA 121640ES10		METHOD OF SHIPMENT GOVERNMENT VEHICLE					
SHIPPED TO Waste Sampling & Characterization		OFFSITE PROPERTY NO. N/A				BILL OF LADING/AIR BILL NO. N/A					
MATRIX* A=Air DL=Drum L=Liquid DS=Drum S=Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water W1=Wipe X=Other		POSSIBLE SAMPLE HAZARDS/ REMARKS Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)		PRESERVATION HNO3 to pH <2		HNO3 to pH <2					
		TYPE OF CONTAINER		Square Bottle - Poly		G/P					
		NO. OF CONTAINER(S)		1		1					
		VOLUME		500mL		1L					
		SPECIAL HANDLING AND/OR STORAGE <i>20070503</i>		SAMPLE ANALYSIS Gamma Spectroscopy (Caesium-137)		Strontium-90, 90 - Total Sr					
SAMPLE NO.		MATRIX*		SAMPLE DATE		SAMPLE TIME					
B1MW24		WATER		3-26-07		0825		✓		✓	
<i>W07C200562</i>											
CHAIN OF POSSESSION				SIGN/ PRINT NAMES				SPECIAL INSTRUCTIONS			
RELINQUISHED BY/REMOVED FROM W. M. Wise		DATE/TIME <i>3-26-07 1540</i>		RECEIVED BY/STORED IN <i>[Signature]</i>		DATE/TIME <i>3/26/07 1540</i>					
RELINQUISHED BY/REMOVED FROM		DATE/TIME		RECEIVED BY/STORED IN		DATE/TIME					
RELINQUISHED BY/REMOVED FROM		DATE/TIME		RECEIVED BY/STORED IN		DATE/TIME					
RELINQUISHED BY/REMOVED FROM		DATE/TIME		RECEIVED BY/STORED IN		DATE/TIME					
RELINQUISHED BY/REMOVED FROM		DATE/TIME		RECEIVED BY/STORED IN		DATE/TIME					
RELINQUISHED BY/REMOVED FROM		DATE/TIME		RECEIVED BY/STORED IN		DATE/TIME					
RELINQUISHED BY/REMOVED FROM		DATE/TIME		RECEIVED BY/STORED IN		DATE/TIME					
RELINQUISHED BY/REMOVED FROM		DATE/TIME		RECEIVED BY/STORED IN		DATE/TIME					
LABORATORY SECTION		RECEIVED BY		TITLE		DATE/TIME					
FINAL SAMPLE DISPOSITION		DISPOSAL METHOD		DISPOSED BY		DATE/TIME					

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COLLECTOR <i>Lanman Wise</i>		COMPANY CONTACT TRENT, SJ		TELEPHONE NO. 373-5869		PROJECT COORDINATOR TRENT, SJ		PRICE CODE 7N		DATA TURNAROUND 45 Days / 45 Days	
SAMPLING LOCATION I-EB-2 <i>C5617</i>		PROJECT DESIGNATION UR-1 Operable Unit Auger and Surficial Sampling - QC Sampling				SAF NO. F07-031		AIR QUALITY <input type="checkbox"/>			
ICE CHEST NO.		FIELD LOGBOOK NO.		COA 121640ES10		METHOD OF SHIPMENT GOVERNMENT VEHICLE					
SHIPPED TO Waste Sampling & Characterization		OPPSITE PROPERTY NO. N/A				BILL OF LADING/AIR BILL NO. N/A					

MATRIX* A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	POSSIBLE SAMPLE HAZARDS/ REMARKS Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)	PRESERVATION	HNO3 to pH <2	HNO3 to pH <2						
		TYPE OF CONTAINER	Square Bottle - Poly	G/P						
		NO. OF CONTAINER(S)	1	1						
		VOLUME	500mL	1L						
	SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	Gamma Spectroscopy (Cesium-137)	Strontium-89,90 - Total Sr						

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME						
B1MW25	WATER	3-26-07	12:30	✓	✓				
<i>563</i>									

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS			
RELINQUISHED BY/REMOVED FROM <i>W. M. Wise</i>	DATE/TIME <i>3-26-07 1540</i>	RECEIVED BY/STORED IN <i>[Signature]</i>	DATE/TIME <i>3/26/07 1540</i>				
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME				
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME				
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME				
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME				
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME				
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME				

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME